

Attorney's Docket No.: **44655-324916**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION of:
Teuvo MOILANEN

Confirmation No.: 1173

Application No.: 10/563,135

Group Art Unit: 3654

Filed: April 21, 2006

Examiner: REESE, Robert T.

Title: ARRANGEMENT IN CONNECTION WITH CENTRAL LUBRICATION SYSTEM

AMENDMENT IN RESPONSE TO OFFICE ACTION

MAIL STOP AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the 18 August 2010 Office Action relating to the above-identified patent application, Applicant requests the following amendments to the pending claims and reconsideration of the patent claims based on the following remarks.

Barnes & Thornburg Customer No:

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U.S. Patent and Trademark Office

IN THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) An arrangement in connection with a central lubrication system, the arrangement comprising

- a lubricant vessel,
- a pump unit,
- a control unit,
- pipe systems,
- a pressure monitor unit,

at least one feeder provided with at least one magnetizable piston ~~which~~ that moves due to the influence of the pressure of a lubricant present in the pipe system to be lubricated, and

a movement monitor unit for each feeder configured to monitor the operation of the central lubrication system, the lubricant being arranged to be pumped from the lubricant vessel along the pipe to the feeders and objects to be lubricated, wherein the movement monitor unit is located outside a pressurized space of the corresponding at least one feeder, the pressurized space being formed by at least one wall; and wherein the

a junction part that is manufactured from a weakly magnetizable material and comprises:

a sensor part which is located outside of the at least one wall that defines the pressurized space corresponding at least one feeder and comprises a fixed permanent magnet to generate a magnetic field, and a sensor for detecting movement of the magnetizable piston, and

an electronics part which processes a signal received from the sensor produced as a result of a change in the magnetic field caused by the movement of the piston with respect to the sensor part and forwards this processed signal to the control unit.

2. (Previously Amended) An arrangement as claimed in claim 1, wherein the sensor is a Hall sensor.

3. (Previously Amended) An arrangement as claimed in claim 2, wherein the sensor is an analogue Hall sensor.

4. (Previously Amended) An arrangement as claimed in claim 2, wherein output of the movement monitor unit is locking so that a detection mode of the piston remains in a memory.

5. (Previously Amended) An arrangement as claimed in claim 4, wherein the locked detection mode of the output of the movement monitor unit is releasable by cutting an operating voltage of the sensor for a predetermined time.

6. (Previously Amended) An arrangement as claimed in claim 1, wherein the movement monitor unit is in its entirety located outside a pressurized space of the feeder.

7. (Previously Amended) An arrangement as claimed in claim 1, wherein the electronics part comprises a voltage regulator, a detector for detecting polarity of voltage, a microcontroller, an output circuit, indicator LEDs as well as an amplifier part comprising a differential amplifier circuit and low-pass filters.

8. (Previously Amended) An arrangement as claimed in claim 7, wherein the output circuit is a potential-free relay contact.

9. (Previously Amended) An arrangement as claimed in claim 1, wherein the plurality of movement monitor units of the central lubrication system are coupled in series.

REMARKS

By this Amendment, claim 1 is amended to merely clarify the recited subject matter.

Claims 1, 2, 4, 5 and 6 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Hakansson (US 6,928,976) and Reininger (20030030431), claims 3 and 7 have been rejected under 35 U.S.C. 103(a) based on Hakansson Reininger and "Hall Effect Sensing and Application" by Honeywell (hereafter "Honeywell"), claim 8 has been rejected based on Hakansson, Reininger, Honeywell and Diong (US 20020165953), claim 9 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Hakansson, Reininger, Honeywell, Diong and Melgaard et al. (US 3,872,473; hereafter "Melgaard").

Applicant traverses the prior art rejections because the combined teachings of the cited prior art fail to teach or suggest all the features recited in the rejected claims. For example, the cited prior art fails to teach or suggest the claimed central lubrication system arrangement comprising a lubricant vessel, a pump unit, a control unit, pipe systems, a pressure monitor unit, **at least one feeder provided with at least one magnetizable piston which moves due to the influence of the pressure of a lubricant present in the pipe system to be lubricated**, a movement monitor unit for each feeder to monitor the operation of the system, the lubricant being arranged to be pumped from the lubricant vessel along the pipe system to the feeders and further to objects to be lubricated, **and a junction part located in the movement monitor unit outside a pressurized space of the corresponding at least one feeder, the pressurized space being formed by at least one wall, wherein the junction part is manufactured from a weakly magnetizable material and comprises a sensor part which is located outside the pressurized space of the corresponding at least one feeder and comprises a fixed permanent magnet to generate a magnetic field**, as recited in independent claim 1 and its dependent claims.

The Office Action has recognized the deficiencies of Hakansson and asserted that Reininger teaches the claimed sensor part located outside the pressurized space associated with the at least one feeder. More specifically, the Office Action has asserted that Reininger describes means for detecting a position of a piston 11 and which comprises a sensor arrangement 14, located outside the pressure space in which the piston 11 is moving. That sensor arrangement 14 comprises sensors 15 and 16, which may be, for example, Hall sensors. However, Reininger merely teaches that the piston 11 may include permanent magnets 13 (see Figure 1, paragraphs [0013] - [0019]). Thus, the piston's position is detected

by detecting the change in the magnetic field provided with the permanent magnets 13 as the piston 11 is moved sensed by the sensor arrangement 14.

The Office Action has asserted that the pressurized space of Reiniger is considered to be the interior of the pipe wall 10, and the bottom surface of the piston 11. However, Applicants submit that the one of ordinary skill in the art would have recognized that the pressurized space in Reiniger's Figure to also include the space above the piston. This is because the piston moves in that space and, therefore, the whole space in which the piston moves must be considered to be a pressurized space.

In accordance with the claimed invention, the permanent magnet 5 is part of a sensor part 3, which is located outside a pressurized space of the feeder. Thus, there is a wall between the pressurized space and the movement monitor that includes the sensor part 3. Thus, for example, as discussed in paragraph [0017], and in connection with Figs. 1 and 2, the claimed permanent magnet 5 is a part of the sensor part 3 located outside of the wall of the pressurized space. Thus, in accordance with the claimed invention, the permanent magnet is located outside the pressure space in which the piston is moving; thus, the permanent magnets are not provided as part of the piston or mounted to it. **Applicant has further amended the claims to further clarify that the** pressurized space is formed by at least one wall and a sensor part which comprises a permanent magnet is located outside of the at least one wall that defines the pressurized space, which is clearly not disclosed by Reininger.

However, in Reininger there is no wall between the permanent magnet 13 and the piston because the permanent magnet is attached to the piston. Therefore, the permanent magnet 13 is included in Reininger's pressurized space.

Thus, the combined teachings of Hakansson and Reininger fail to teach or suggest the claimed invention including at least one feeder provided with at least one magnetizable piston which moves due to the influence of the pressure of a lubricant present in the pipe system to be lubricated, and further includes a movement monitor unit with the claimed junction part located in the movement monitor unit outside a pressurized space of the feeder, wherein the junction part is manufactured from a weakly magnetizable material and comprises the claimed sensor part and electronics part.

Honeywell, Diong, and Melgaard fail to remedy the above-identified deficiencies of Hakansson and Reininger because Diong and Melgaard merely describe different types of control systems and Honeywell merely describes various applications of Hall sensors.

Therefore, combined teachings of Hakansson and Reininger fail to teach or suggest the claimed invention including at least one feeder provided with at least one magnetizable piston, which moves due to the influence of the pressure of a lubricant present in the pipe system to be lubricated, and further includes a movement monitor unit with the claimed junction part located in the movement monitor unit outside a pressurized space of the corresponding at least one feeder, the pressurized space being formed by at least one wall; and a junction part that is manufactured from a weakly magnetizable material and comprises a sensor part which is located outside of the at least one wall that defines the pressurized space corresponding at least one feeder.

In view of the above, it is submitted that all of the claims are in condition for allowance and such action is respectfully requested. If there is any issue remaining to be resolved, the examiner is invited to telephone the undersigned at (202) 371-6371 so that resolution can be promptly effected.

It is requested that, if necessary to effect a timely response, this paper be considered a Petition for an Extension of Time sufficient to effect a timely response with the fee for such extensions and shortages in other fees, being charged, or any overpayment in fees being credited, to the Account of Barnes & Thornburg LLP, Deposit Account No. 02-1010 (44655-324916).

Respectfully submitted,
BARNES & THORNBURG LLP

/ Christine H. McCarthy /

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Date: 20 December 2010